Algebraic Concepts
Lesson 25 Worksheet
Math for Standards

Name _____

Date _____

For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer and two for showing your work. For some problems, you may just need to write out how you know you have the correct answer.

In 1-4, solve the equations by factoring.

1. $x^2 - 4x = 12$

2. $a^2 - 19a - 42 = 0$

3. $x^2 + 8x - 20 = 0$

4. $5x^2 + 8x - 4 = 0$

5. The width of a rectangle is 9 feet less than its length. If its area is 486 square feet, find the dimensions of the rectangle.

6. When the square of a number is decreased by 14, the result is equal to 5 times the number. Find the number.

7. Use the equation $h = -16t^2 + h_0$, where h is the height above the ground at t seconds and h_0 is the initial height of the object. Two objects are dropped: one from a height of 300 ft., the other from a height of 600 ft. To the nearest tenth of a second, how long after the first object hits the ground will the second object hit?

8. Solve $4w^2 - 4w = 0$.

9. Solve $z^2 + 2z - 24 = 0$.

Open-Ended Question: Answer on a separate sheet of paper. Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!

The equation $h = 784 - 16t^2$ models a graph for an object that is dropped from 784 feet above the ground, where h is the height and t is time in seconds.

A. What is the height of the object when $t = 0$? When $t = 7$?

B. Draw a graph of the function. How does this graph show that the object is picking up speed as it descends?